

WHAT IS CLAIMED IS:

1. A method for detecting a polynucleotide sequence which comprises:

fixing said polynucleotide sequence to a solid support in hybridizable form;

forming an entity comprising said polynucleotide sequence hybridized to a polynucleotide or oligonucleotide probe, said probe having covalently attached thereto a chemical label comprising a signalling moiety capable of generating a soluble signal; and

detecting said polynucleotide sequence by means of the generation of a soluble signal.

2. The method according to Claim 1, characterized in that said detecting step comprises spectrophotometric techniques.

3. The method according to Claim 1, characterized in that said soluble signal is selected from the group consisting of a colored product or a fluorescent product.

4. The method according to Claim 1, characterized in that said signalling moiety is selected from the group consisting of an enzyme, a chelating agent and a co-enzyme.

5. The method according to Claim 1, characterized in that said solid support is non-porous.

6. The method according to Claim 6, characterized in that said solid support is transparent or translucent.

7. The method according to Claim 5, characterized in that said solid support is selected from the group consisting of glass, plastic, polystyrene, polyethylene, dextran and polypropylene.

8. The method according to Claim 1, characterized in that said solid support is porous.

9. The method according of Claim 1, characterized in that said polynucleotide sequence is directly fixed to said solid support.

10. The method according to Claim 9, characterized in that said polynucleotide sequence is fixed to said solid support in single stranded form.

11. The method according to Claim 1, characterized in that said signalling moiety is attached to said polynucleotide or oligonucleotide probe through the formation of a complex.

12. The method according to Claim 11, characterized in that said complex is selected from the group consisting of biotin and avidin, biotin and streptavidin, and a sugar and a lectin.

13. The method according to Claim 1, characterized in that said forming step further comprises washing to remove said polynucleotide or oligonucleotide probes that do not form said entity.

14. The method in accordance with Claim 13, characterized in that said forming step further comprises attaching said signalling moiety to said polynucleotide or oligonucleotide probe

through the formation of a complex formed after said washing.

15. The method in accordance with Claim 14, characterized in that said forming step further comprises separating free signalling moieties from said signalling moiety-probe complexes.

16. The method according to Claim 1, wherein said detecting step further comprises generating said soluble signal in a device capable of transmitting light therethrough for the detection of said soluble signal by spectrophotometric techniques.

17. The method in accordance with Claim 16, characterized in that said device is selected from the group consisting of a well, a tube, a cuvette and an apparatus which comprises a plurality of said wells, tubes or cuvettes.

18. The method according to Claim 16, characterized in that said soluble signal is selected from the group consisting of a colored product and a fluorescent product.

19. The method according to Claim 16, characterized in that said solid support and said device are composed of the same materials.

20. A device which comprises:
means for containing a fluid
comprising:

(i) an immobilized polynucleotide sequence hybridized to a polynucleotide or oligonucleotide probe, said probe having covalently attached thereto a

chemical label comprising a signalling moiety capable of generating a soluble signal, and

(ii) a soluble signal generated by means of said signalling moiety.

21. The device according to Claim 20, wherein said means for containing a fluid is selected from the group consisting of a well, a tube, and a cuvette.

22. The device according to Claim 21, wherein said soluble signal is selected from the group consisting of a colored or fluorescent product.

23. An apparatus comprising:
a plurality of means for containing a fluid, wherein at least one of said means comprises:
(i) an immobilized polynucleotide sequence hybridized to a polynucleotide or oligonucleotide probe, said probe having covalently attached thereto a chemical label comprising a signalling moiety capable of forming a soluble signal, and
(ii) a soluble signal generated by means of said signalling moiety.

24. A non-porous solid support having directly fixed thereto a polynucleotide sequence in hybridizable form.

25. The support according to Claim 24, characterized in that said polynucleotide sequence is hybridized to a polynucleotide or oligonucleotide probe, said probe having covalently attached thereto a chemical label comprising a signalling moiety capable of generating a soluble signal.

26. The support according to Claim 24,
characterized in that said support is a transparent
or translucent support.

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